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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,825	09/16/2003	Yoshikazu Amano	Q77478	1097

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EXAMINER

BOWERS, NATHAN ANDREW

ART UNIT	PAPER NUMBER
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1744

DATE MAILED: 01/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/662,825	Applicant(s) AMANO, YOSHIKAZU	
	Examiner Nathan A. Bowers	Art Unit 1744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>020904, 091603</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

- 1) Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Neriishi (US 20020197568).

With respect to claims 1, 3, and 5, Neriishi discloses a biochemical analysis unit comprising a base plate (Figure 1:5), which has a plurality of holes (Figure 2:6). This is disclosed in paragraphs [0030]-[0039] and [0100]. Paragraph [0206] states that the base plate is constructed from any material that has radiation attenuating properties and/or light attenuating properties. Paragraphs [0234]-[0237] disclose that a porous adsorptive material (Figure 36:221) is filled in each of the plurality of holes in order to form a plurality of adsorptive regions. It is further stated that the pores in the adsorptive material each have a diameter falling within the range of 0.1 to 50 μm . This anticipates pore diameter ranges of 1 μm to 10 μm , 1 μm to 5 μm , and 2 μm to 4 μm .

With respect to claims 2, 4, and 6, Neriishi discloses the apparatus in claim 1, wherein the porous adsorptive material takes on the form of a film. [0234]-[0237] and

Figure 36 demonstrate how a porous adsorptive film is fitted into the holes formed in the base plate. Again, it is stated that the pores in the adsorptive film each have a diameter falling within the range of 0.1 to 50 μm . This anticipates pore diameter ranges of 1 μm to 10 μm , 1 μm to 5 μm , and 2 μm to 4 μm .

2) Claims 1, 3, and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Hosoi (US 6872531).

Hosoi discloses a biochemical analysis unit comprising a base plate (Figure 1:11), which has a plurality of holes. This is disclosed in column 3, lines 21-45 and column 5, lines 20-28. Column 4, lines 42-43 state that the base plate is made from metal, plastic, or ceramic materials that do not transmit radiation. A porous adsorptive material (Figure 1:12) is placed within each of the plurality of holes in the base plate and forms a plurality of adsorptive regions. Column 6, lines 1-3 state that the pores in the adsorptive material each have a diameter falling within the range of 0.1 to 50 μm . This anticipates pore diameter ranges of 1 μm to 10 μm , 1 μm to 5 μm , and 2 μm to 4 μm .

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3) Claims 1, 3, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagasawa (US 20020127585) in view of Maul (US 5955377) and Beattie (US 5843767).

Nagasawa discloses a biochemical analysis unit comprising a base plate (Figure 1:2), which has a plurality of holes (Figure 1:3). A porous adsorptive material (Figure 1:1) is filled in each of the plurality of holes in order to form a plurality of adsorptive regions. This is disclosed in paragraphs [0012]-[0019] and [0046]. Nagasawa teaches that different biological probe materials are adsorbed upon the porous materials that are placed into the holes. Nagasawa, however, does not expressly disclose that the base plate is made of a material having radiation and/or light attenuating properties, or that the pore diameter is within the range of 1 μm to 10 μm .

Maul discloses a kit for detecting the presence of a biochemical analyte of interest. Maul teaches that probe arrays are immobilized upon a base plate in order to selectively bind to a desired molecule in a sample. Detection of binding events is accomplished by using a substrate which has an optically active surface that exhibits a response to impinging light. Column 12, lines 1-21 teach that the substrate is made from light attenuating materials.

Beattie discloses a biochemical analysis unit in which a plurality of nucleic acid probe arrays are immobilized within densely packed pores or channels that are arranged in patches across a base plate. This is disclosed in column 5, line 26 to column 7, line 15. Column 11, line 58 to column 12, line 21 states that the pores are characterized by diameters selected over the range from 2 nm to several micrometers.

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Nagasawa, Maul, and Beattie are analogous art because they are from the same endeavor regarding biochemical analysis units for the detection of a biological analyte.

At the time of the invention, it would have been obvious to alter Nagasawa's device in order to incorporate into the overall design a light attenuating base plate, as well as adsorptive materials with pore diameters of a few micrometers. Light attenuating materials are beneficial because they serve to improve signal to background behavior and enhance detection levels during optical analysis. Beattie teaches in column 4, lines 20-28 that it is well known in the art to use light attenuating materials to help determine the specific sites where hybridization has taken place. It also would have been beneficial to ensure that the pore diameter of the adsorptive material in Nagasawa's apparatus was within the range of 1 μm to 10 μm , and more specifically, 1 μm to 5 μm or 2 μm to 4 μm . In column 1, lines 43-45 and column 9, lines 46-59, Beattie teaches that small pore sizes help to increase the surface area available at the array. This allows for greater amounts of biochemical probes to be immobilized at the pores, which in turn helps to increase the efficiency of hybridization.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan A. Bowers whose telephone number is (571) 272-8613. The examiner can normally be reached on Monday-Friday 8 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone

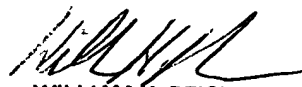
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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



NAB



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